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TO: Agencies engaged in dissolved gas monitoring

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The accompanying diagram illustrates the logging of dissolved gas data from a pumped sample system.

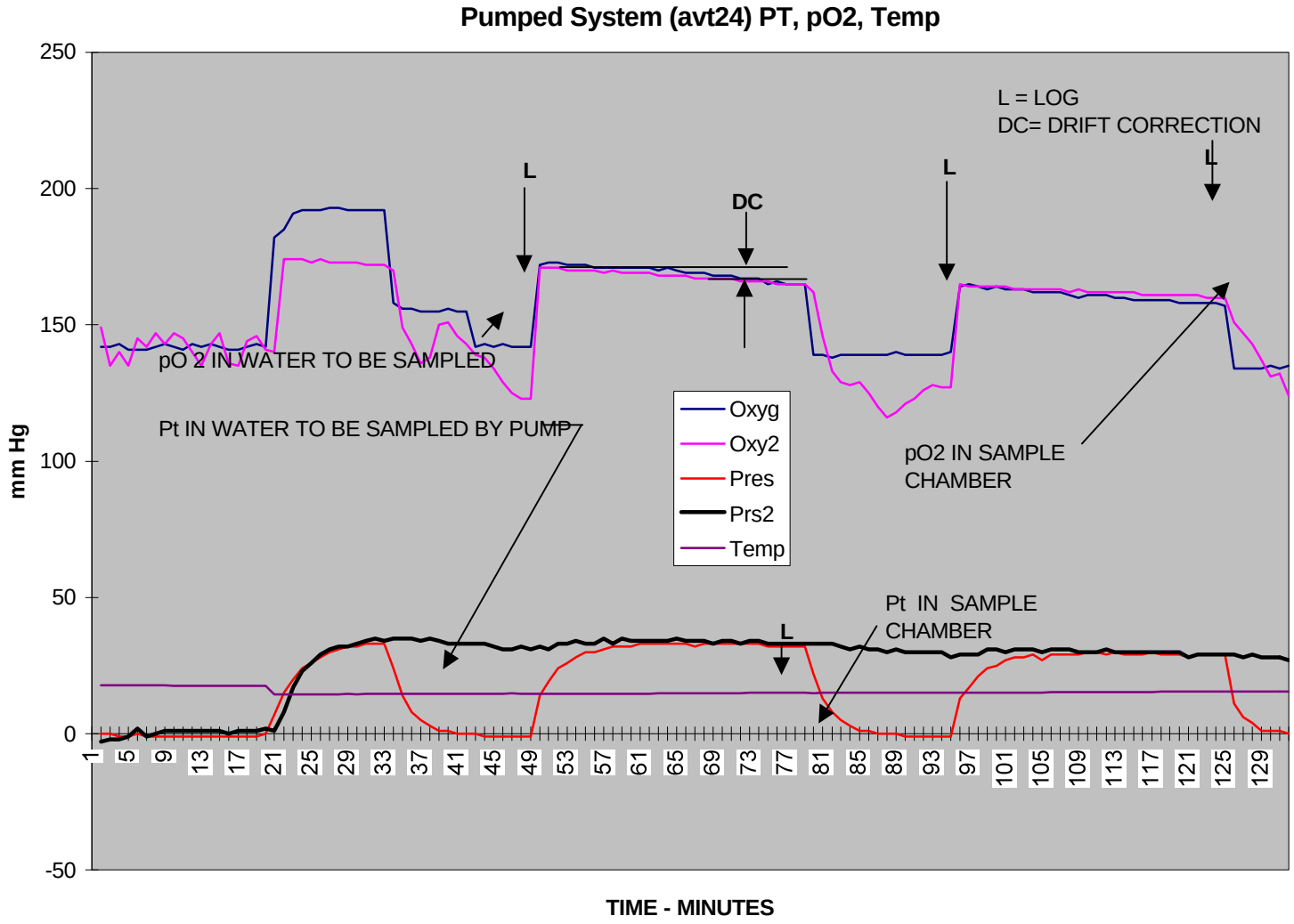
A tub was set up with a submersible pump in it, which could pump to at least 15 feet of head. On cue from the data logger a solid state relay turned on the pump and the sample chamber with 15 feet of pressure was filled and overflowed for the period shown and the values were recorded every minute.

At the lower part of the record the dense line shows the value of TDGP in the tub, while the cyclic, exponentially changing line shows the time course of TDGP in the chamber when the pump was turned on and off on a thirty minute time scale.

The top two traces in the record show the same for oxygen, and illustrate how a drift assessment can be made which can then be applied to the next set of logged data.

The merits of such a system have been mentioned before. Primarily it would eliminate the need to visit the sites periodically for sensor calibration, and thus would save a considerable amount of labor while providing accurate data. It would also reduce wear and tear on the probe membranes and therefore extend the necessary time between changes.

Finally, looking to the future it provides a sample system for any other sensors that may be required and which may be less easily deployed than these TDGP probes. It further provides a useful means of testing the merits of a number of different sensor brands at the same time on the same samples.


Pumped System (avt24) PT, pO2, Temp
250
200
150
100
50
0
-50
mm Hg
L = LOG
DC= DRIFT CORRECTION
L
DC
L
L
pO 2 IN WATER TO BE SAMPLED
Pt IN WATER TO BE SAMPLED BY PUMP
pO2 IN SAMPLE CHAMBER
Pt IN SAMPLE CHAMBER
Oxyg
Oxy2
Pres
Prs2
Temp
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97 101 105 109 113 117 121 125 129
TIME - MINUTES